

Review Comments
Supplemental Source Control Evaluation Work Plan
Former Bird Facility
Portland, Oregon
Dated September 2015

Submitted September 21, 2015

Following are the United States Environmental Protection Agency's (EPA) comments on the September 2015 document titled, Supplemental Source Control Evaluation Work Plan, Former Bird Facility, Portland, Oregon prepared by Forensic Environmental Services, Inc. (FES). The Former Bird Facility site is located at 6350 NW Front Ave, Portland, Oregon and listed in Oregon Department of Environmental Quality's (DEQ) cleanup program as ESCI #117. The site is located at approximately river mile 7.5 west (RM 7.5W).

EPA understands the purpose of the Work Plan is to respond to comments received from DEQ on the June 2012 SCE Report prepared by FES, which were further discussed in the June 3, 2015 joint meeting between FES, Certain Teed, and DEQ. The Work Plan has the following objectives:

1. Delineate compounds of interest (COIs) in groundwater hydraulically downgradient of MW-22;
2. Evaluate whether COIs extend from the area of concern (AOC) to Saltzman Creek and the Willamette River;
3. Further delineate COIs upstream and downstream of the Former Bird Facility in Saltzman Creek;
4. Further delineate COIs in erodible sediments along the banks of Saltzman Creek and the Willamette River; and
5. Evaluate whether site-specific COIs are present in near river groundwater discharging proximal to Saltzman Creek and the Willamette River above applicable criteria.

EPA's review comments on the Work Plan are as follows.

General Comments

1. The site hydrogeology as described in Sections 1.3 and 1.4 of the Work Plan needs further explanation to support the proposed monitoring well installation and sampling. Of particular concern is the lack of explanation for the apparent large decrease in hydraulic head between monitoring wells MW-11 and MW-23, shown in the potentiometric contour maps of Figures 4 and 5. The large head differential between these two wells may indicate that the wells located in the former fill area (MW-18, MW-23, and MW-25) are completed in a different hydrogeologic unit or it may indicate that the groundwater levels in this area are strongly influenced by tidal changes in the Willamette River. Wells MW-18, MW-23, and MW-25 have screen intervals completed deeper in the aquifer and are screened across a coarse grained sand

unit. Tidal effects on groundwater levels, seasonal changes in groundwater levels, and discussion of head differences in wells completed in the different hydrogeologic units at the site should be discussed in Sections 1.3 and 1.4. It is critical to understand the range of groundwater elevations in the former fill area and take this into account when installing new monitoring wells so that the well screens are completed at the appropriate depths (uppermost portion of the aquifer – see General Comment 2).

2. The rationale for the 30 – 40 feet depth screen intervals proposed for the former fill area wells MW-29 through MW-31 should be provided in the Work Plan. To characterize groundwater contamination in this area, these wells should have well screens completed in the uppermost part of the aquifer, taking into account seasonal and tidal high groundwater elevations. Based on the cross sections presented in the 2012 SCE Report (Figures 7-14 and 7-15), a 30 – 40 feet depth interval would put the top of the screen interval approximately 10 feet below the water table. Groundwater elevation monitoring data at existing wells and visual observations during drilling (e.g., soil color changes or oxidized zones) should be used to determine the seasonal high water table and well screen placement.
3. EPA understands that groundwater discharge to both Saltzman Creek and the Willamette River are the primary pathways of concern for COIs detected at MW-22 at concentrations exceeding the Joint Source Control Screening Level Values (JSCS SLVs). However, the potentiometric surface maps in Figures 4 and 5 show the groundwater gradient at MW-22 towards the southeast, with contaminated groundwater potentially migrating towards Saltzman Creek and the offsite area. No monitoring wells are included south of Saltzman Creek to extend the potentiometric contours into the offsite area south of the creek. The Work Plan should address potential contaminant transport beyond Saltzman Creek to the offsite area to the southeast and provide rationale for why no monitoring wells are proposed to delineate groundwater contamination in this area.
4. The pore water investigation approach in the Work Plan relies on hydraulic head measurements and field water quality parameters at multiple sampling depths to determine the depth of the groundwater/surface water interface (GSI). Specific criteria should be identified in the Work Plan to determine what field water quality parameter values indicate groundwater, surface water, and mixed groundwater-surface water. These criteria will be important to differentiate upwelling mixed groundwater-surface water from upwelling groundwater. EPA is aware that a former salt pad area at the adjacent Arkema property resulted in groundwater having high conductivity in that area. This should be taken into account when evaluating conductivity values in groundwater and pore water near the northern property boundary.
5. The effect of changing river stages throughout the tidal cycle on the position of the GSI should be evaluated in the Work Plan. Tidal effects have the potential to change hydraulic head and contaminant concentrations in groundwater near the GSI. Consideration should be given for collection of pore water samples during a similar time period in the tidal cycle.
6. The appropriate comparison criteria that should be used to evaluate surface water, groundwater, sediment, and soil are the Preliminary Remediation Goals (PRGs) that EPA has established for the Portland Harbor site. The latest version was released by EPA for stakeholder review in

August 2015. The Sampling and Analysis Plan (SAP) Table 5-1 should be checked to verify that requested target detection levels are sufficient to meet the PRGs.

Specific Comments

1. Section 1.5, page 4, paragraph 2 – It is not clear to EPA how the gauging data will be used to evaluate the interaction of stormwater, perched groundwater, and groundwater. Please expand on this so EPA understands how the interaction of stormwater, perched groundwater, and groundwater will be evaluated and whether the well installation under this work plan are sufficient for the evaluation.
2. Section 2.0, page 5, paragraph 1 – The statement that six wells will be installed in the former fill area is not consistent with the proposed well locations in Figure 6 and the description in the sampling and analysis plan (SAP).
3. Section 3.0, page 8, paragraph 1 – EPA recommends that multiple groundwater elevation measurements be obtained from wells to evaluate the tidal effects on groundwater levels. An understanding of how groundwater elevations change throughout the tidal cycle is needed to evaluate the hydraulic gradient and how it changes over time.
4. Section 4.0, page 9, paragraph 2 - The Work Plan states that samples will be collected to a depth of 1 to 6 inches. However, the SAP (Section 2.2.3, paragraph 1) states a sample will be collected from 1 to 2 inches. EPA recommends a uniform depth be applied to the sampling plan and other planning documents.
5. Section 5.0, page 10, paragraph 1 – EPA understands that the 20 discrete bank soil sample locations will be determined in the field based on exposed soil; however, the general area from where the samples will be collected should be indicated on Figure 6. As part of the bank soil assessment, areas of bank armoring, vegetation, exposed soil, and erosional features should be documented on a map of the riverbank. The discrete riverbank soil sample locations should be shown on the map.
6. Section 5.0, page 10, paragraph 1 - It is stated that a “possible statistical analysis regarding the previously detected metal SLV exceedances” will be performed. However, there is no criteria given that would be used to determine if a statistical analysis on the metal would or would not be performed. If there is a metric for whether a statistical analysis would or would not be performed on metal SLV exceedances, it should be clearly articulated.
7. Section 5.0, page 10, paragraph 3 - The Work Plan states that rip-rap and vegetation limit accessibility to the upper bank of Saltzman Creek and the Willamette River bank and that the middle and bottom of the embankment are the most likely source areas of sediment contribution, and therefore the sampling will be biased to middle and lower portions. However, if there are areas of bare sediment in the upper area, these could very well contribute sediment to the river/creek. EPA recommends that all reasonable attempts be made to collect upper bank soils where there is exposed, un-vegetated soil.

8. Section 6.0, page 12, paragraph 5 – The method for collecting comparison surface water sample and surface water elevation at the transect point locations in the mudflat above the edge of water should be described.
9. Section 6.0, page 13, paragraph 1 – The GSI may vary in depth along the riverbank and may not be the same as determined at the transect locations. EPA recommends that hydraulic head be measured at each non-transect pore water sample location in addition to field water quality parameters. The hydraulic head of the pore water sample interval should be compared to the river stage to verify that the pore water sample interval is in an area of groundwater upwelling.
10. Figures 2 and 6 – A north arrow should be added to these figures.